

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Inventors: Joachim LOHR, et al.

Art Unit 2616

Appln. No.: 10/586,736

Exr. C. Patel

Filed: July 21, 2006

Conf. No. 5985

For: METHOD OF HARQ RETRANSMISSION TIMING CONTROL

RESPONSE UNDER 37 CFR 1.111

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated June 3, 2008, the Applicants respectfully request reconsideration and allowance of this application in light of the following remarks.

Claims 24-40 stand rejected, under 35 USC § 103(a), as being unpatentable over Hwang et al. (US 2002/0168945) in view of Padovani et al. (US 7,079,550). The Applicants respectfully traverse these rejections based on the points set forth below.

Claim 24 defines an uplink data transmission control method in which a base station transmits a feedback message to a mobile station and the received feedback message triggers a synchronous transmission of a retransmission data packet from the mobile station.

The Office Action acknowledges that Hwang does not disclose this subject matter (see Office Action page 2, last paragraph), but proposes that Padovani does disclose this subject matter in column 10, lines 27-39 (see Office Action page 3, lines 2-3 of second paragraph).

However, the Applicants note that Padovani discloses, in Figs. 1 and 2 and column 10, lines 27-39, that a channel scheduler 48 of a base station 4 “coordinates the forward link data transmissions” of base station 4 and “schedules high rate data transmission” so as to maximize data throughput and minimize transmission delay (see Padovani col. 10, lines 30-32 and 37-39). A coordinated and scheduled transmission is not the same as, or similar to, the claimed subject matter of a synchronous transmission. Synchronous transmission is a term-of-art which means that a synchronization of a data transmission to clock timing that is common to both a transmitter and a receiver so that the receiver knows when the transmitted data will be received. Coordinated and scheduled transmissions neither require nor imply that the transmissions are synchronized to clock timing that is common to both a transmitter and a receiver. Thus, it is clear that Padovani does not disclose the claimed subject matter of a synchronous transmission and the Office Action acknowledges that Hwang does not disclose this subject matter.

Claim 24 further recites a base station scheduling uplink data transmissions of mobile stations by transmitting a common control message to the mobile stations that sets a maximum uplink resource for the mobile stations.

The Office Action acknowledges that Hwang does not disclose this subject matter (see Office Action, paragraph bridging pages 2 and 3), but proposes that Padovani does disclose this subject matter (see page 3, lines 4-7 of second paragraph). More specifically, the Office Action proposes that Padovani's signal to interference ratio (C/I) determines the maximum uplink data rate (i.e., maximum uplink resource) (see page 3, lines 9-11 of second paragraph).

However, the Applicants note that Padovani discloses that "the data rate is determined by the largest C/I measurement of the forward link signals as measured at the mobile station" (see

Padovani abstract, lines 7-9). Given that Padovani's C/I measurement is measured at the mobile station and the Office Action proposes that the C/I measurement corresponds to the Applicants' claimed common control message, it necessarily follows that Padovani does not disclose the claimed subject matter wherein a base station transmits the common control message to the mobile station, and the Office Action acknowledges that Hwang does not supplement the teachings of Padovani in this regard.

Accordingly, the Applicants submit that Hwang and Padovani, considered individually or in combination, do not render obvious the subject matter defined by claim 24. Specifically, the applied references fail to teach or suggest the claimed subject matter wherein: (1) a base station transmits a feedback message to a mobile station and the received feedback message triggers a synchronous transmission of a retransmission data packet from the mobile station and (2) the base station transmits a common control message to the mobile stations that sets a maximum uplink resource for the mobile stations. Independent claims 28, 32, and 36 similarly recite the above-mentioned subject matter distinguishing method claim 24 from the applied references, although claims 28 and 36 do so with respect to apparatuses and claims 32 and 36 do so with respect to a mobile station that communicates with the base station executing the method of claim 24. Therefore, allowance of claims 24, 28, 32, and 36 and all claims dependent therefrom is deemed to be warranted.

To promote a better understanding of the differences between the claimed subject matter and the teachings of the applied references, the Applicants provide the following additional remarks.

The Office Action proposes that Padovani discloses the claimed subject matter of synchronous transmission of a retransmission data packet text in column 10, lines 27-39 (see Office Action page 3, lines 2-3 of second paragraph).

However, the cited passage in Padovani provides a general statement concerning the operation of a scheduler that is coordinating the forward link (i.e. downlink) data transmission of one base station. Furthermore, it should be noted that Padovani explicitly relates to downlink transmissions, while the subject matter of the Applicants' independent claims relates to uplink transmissions, i.e., the data packet and the corresponding retransmission data packet are both transmitted on the uplink.

The Office Action further proposes that Padovani discloses, in column 20, lines 44-65, and column 21, lines 23-35, the Applicants' claimed subject matter of a base station transmitting a common control message to a plurality of mobile stations so as to restrict the transmission format combination subset of each of the plurality of mobile stations and to, thereby, set a maximum uplink resource common to the plurality of mobile stations (see Office Action page 3, lines 4-11).

However, Padovani merely teaches that a mobile station selects one of plural supported data rates based on a C/I measurement (see Padovani col. 20, lines 29-31). The cited passage in column 20, lines 44 to 67, must be read together with the preceding paragraph in column 20, lines 27 to 43. Therein it is explicitly explained that data rates supported by the base stations are predetermined (i.e., known) in advance to base stations and mobile stations and each supported data rate is assigned a unique rate index. Accordingly, lines 44 to 67 in column 20 merely explain how the minimum data rate and the maximum data can be selected based on the worst

case C/I measurement in the system, the processing gain of the system, the design of the error correction codes, and the desired level of performance. Clearly, the difference between the supported data rates must be chosen to reflect a compromise among several factors, such as the accuracy of the C/I measurements that can be achieved by the mobile station, losses which result from the quantization of the data rates based on the C/I measurement, and the number of bits needed to transmit the requested data rate from the mobile station to the base station. This entire teaching of how to predetermine minimum and maximum data rate is, however, not related to the feature in question.

Furthermore, the data rate requested by the mobile station (requested data rate) is the data rate the mobile station asks the base station to utilize for *downlink* data transmissions, which is again in clear contrast to the claimed subject matter relating to *uplink* transmissions.

There is no teaching within the entire section cited by the Office Action, as well as the preceding paragraph in column 20, that a common control message is sent to the plurality of mobile stations to inform them on the minimum data rate and the maximum data rate. In contrast, as outlined on page 20, lines 27-29, the data rates supported by the base stations are predetermined and thus known to the mobile stations. Accordingly, the minimum and maximum data rates are not signaled to the mobile stations.

Similarly, also the second passage cited by the Office Action in column 21, lines 23-31, has no relation to the subject matter of the Applicants' independent claims. The cited text passage merely defines the frame structure on the downlink channel ("forward link frame structure"), which can carry control channel information addressed to mobile stations. Although such "control channel frame" may thus convey control information to all mobile stations, the use

of such a control channel frame within the system is not more clearly defined in Padovani. The interpretation of this text passage with respect to Padovani teaching the use of a common control message having the function described in the Applicants' claimed subject matter appears to be based on hindsight gained from the present application, as there is no teaching available from the prior art reference that any control information is transmitted to the mobile stations to thereby set the maximum uplink resource common to the plurality of mobile stations for use for uplink data transmission.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

/James Edward Ledbetter/

Date: August 8, 2008  
JEL/DWW/att

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